

CLAIMS

1. A method for the purification of tetrafluoromethane, comprising contacting tetrafluoromethane containing one or more ethylene compounds, one or more hydrocarbon compounds, carbon monoxide and/or carbon dioxide as impurities with zeolite having an average pore size of 3.4 to 11 Å and an Si/Al ratio of 1.5 or less and/or a carbonaceous adsorbent having an average pore size of 3.4 to 11 Å to reduce the amount of said impurities.

5 2. The method as claimed in claim 1, wherein tetrafluoromethane containing said impurities is contacted with zeolite and/or the carbonaceous adsorbent in a liquid phase.

15 3. The method as claimed in claim 1 or 2, wherein zeolite is at least one selected from the group consisting of MS-4A, MS-5A, MS-10X and MS-13X.

20 4. The method as claimed in claim 1 or 2, wherein the carbonaceous adsorbent is Molecular Sieving Carbon 4A and/or Molecular Sieving Carbon 5A.

25 5. The method as claimed in any one of claims 1 to 4, wherein the one or more ethylene compounds are selected from the group consisting of ethylene, fluoroethylene, difluoroethylene and tetrafluoroethylene.

6. The method as claimed in claim 5, wherein the one or more ethylene compounds are ethylene and/or tetrafluoroethylene.

30 7. The method as claimed in any one of claims 1 to 4, wherein the one or more hydrocarbon compounds are selected from the group consisting of methane, ethane and propane.

8. The method as claimed in claim 7, wherein the one or more hydrocarbon compounds are methane and/or ethane.

35 9. The method as claimed in any one of claims 1 to 8, wherein the total content of the one or more ethylene compounds, the one or more hydrocarbon compounds, carbon

monoxide and carbon dioxide contained in the tetrafluoromethane is reduced to 3 ppm or less.

10. The method as claimed in any one of claims 1 to 9, wherein the tetrafluoromethane containing one or more ethylene compounds, one or more hydrocarbon compounds, carbon monoxide and/or carbon dioxide as impurities is produced by a direct fluorination method of reacting trifluoromethane with fluorine gas.

10 11. The method as claimed in any one of claims 1 to 9, wherein the tetrafluoromethane containing one or more ethylene compounds, one or more hydrocarbon compounds, carbon monoxide and/or carbon dioxide as impurities is produced by a direct fluorination method of reacting carbon with fluorine gas.

15 12. A tetrafluoromethane product having a purity of 99.9997 mass% or more, which is obtained by performing the purification according to the method described in any one of claims 1 to 11.

20 13. An etching gas comprising the tetrafluoromethane product described in claim 12.

14. A cleaning gas comprising the tetrafluoromethane product described in claim 12.